the RARS Exciter

Raleigh Amateur Radio Society

RARS

Worldwide Friendship

June 2004, Number 398

145.13 tri-band antenna, mounted at the base of the WKNC-FM antenna tower, looks out on the western horizon.

The Exciter

The *Exciter* is the monthly newsletter of the Raleigh Amateur Radio Society. It is available in both printed and electronic form. The printed version is mailed to members just before each club meeting. The electronic form, in Adobe Acrobat PDF format, is e-mailed about a week earlier.

We solicit both articles and advertising. The deadline for submissions is the day after the monthly meeting. Contact the Editor.

The views contained in the Exciter are those of the individual authors and are not necessarily the views of the Editor or the Raleigh Amateur Radio Society.

The Raleigh Amateur Radio Society

The Raleigh Amateur Radio Society, Inc. (RARS) was founded in 1969 and continues to serve and support the Amateur Radio community in the greater Triangle area. In 1999, we incorporated a new RARS, and obtained 501(c)(3) Non-Profit tax status.

The objectives of the club are to promote worldwide friendship through Amateur Radio; to be of public service by providing radio communications in times of disaster, emergency, or civic need; to educate members in radio technique; and to provide training classes to assist in obtaining Amateur Radio licenses.

Anyone interested in Amateur Radio is eligible to apply for membership. Dues for regular licensed amateurs are $18.00 per year (from July 1 through June 30). Additional immediate family members pay $5.00 each per year. Dues for licensed amateurs older than 59 or younger than 16 are $12.00 per year. Dues for non-licensed Associate members are $9.00 per year.

Applications for membership may be obtained from the treasurer or the RARS web site (www.rars.org).

EXCITER EDITOR: **Denyse Walter KG4CXR 919-468-5358** kg4cxr@nc.rr.com

SPECIAL SERVICE CLUB

OFFICERS

PRESIDENT: **Andy Peterson NI4S 919-845-6251** ni4s@arrl.net

VICE-PRESIDENT **Dick Bitner W8HYD 919-872-6802** ncsol@bellsouth.net

SECRETARY: **Virginia Enzor KG4PFA 919-469-8555** kg4pfa@aol.com

TREASURER: **Greg Seamster KE4PAX 919-859-0029** ke4pax@arrl.net

RARS Repeaters in Raleigh:
145.13 (82.5 PL)
146.64
224.64 (Temporarily off the air)
444.525 (82.5 PL)

WEB SITE www.rars.org

PRESIDENT'S COMMENTS

Field Day - Bring A Friend. Perhaps you don't need a reminder that Field Day is coming up at the end of June. Set-up begins at 2:00 PM Friday June 25, and operations begin 2:00 PM Saturday the 26th.

I'd like to challenge everyone to head out to the site in Apex for an hour or two at some point over the weekend. It's a great time, and a good chance to operate and fellowship with other hams.

Moreover, I'd extend the challenge to bring someone new out to Field Day. True, the sight of a bunch of hams who've been camping out for the weekend huddled in front of their rigs may be a little overwhelming, but I think Field Day is a great opportunity to show off Ham Radio.

Field Day has it all -- operating on HF and VHF/UHF, CW, phone and digital; contacting hams in other clubs across the country; good camaraderie with other operators, and a relaxed atmosphere.

Likewise, if you're new to HF operating, come check it out. There are always plenty of seats to fill and QSOs to make. See you there!

73, Andy

The Exciter goes to the printer the first Monday after the general meeting. Electronic mailing is the same week. Printing and mailing may vary.

The RARS 145.13 Repeater is waiting for YOU! PL 82.5 Tone

RALEIGH AMATEUR RADIO SOCIETY MEETINGS

Date: ***Every first Tuesday of the Month***
Location: ***Forest Hills Baptist Church, at Dixie Trail and Clark Avenue, in Raleigh***
Time: ***7:30pm. Folks start showing up a bit before 7 to chat, brag and eat donuts.***

VE Testing: The RARS VEs will accept walk-in testing at the February, May, August and November RARS meetings, at the RARSfest in April, the Cary Swapfest in July and the JARSfest in November, and following RARS license classes. Please bring a photo ID and the original copy of your current license, plus any CSCEs you have for credit. Please refer to www.rars.org for more information.

Announcements

NEXT RARS MEETINGS: June 1, 2004 FIELD DAY

FIELD DAY 2004

Field Day will be June 26 & 27, 2004. Setup will be June 25 at 2PM. Field Day is an annual ARRL sponsored event whose main purpose is to test our ability to setup and operate HF/VHF/UHF stations in the field using only emergency power. If you have questions please call Neal Fisher N4HAF at 848-8840 or email N4HAF@nc.rr.com.

TEARA Meetings
Date: 4th Tuesday of each month
Place: The Meeting Place restaurant in Wendell
Time: 6:00P.M. for Dinner & 6:30P.M. for meeting
Sam Johnson NC4SJ

DUES WILL BE DUE BY JULY 1, 2004
Renew online at www.rars.org

CAROLINA 440 RAGCHEW

444.925 Durham
444.375 Henderson
444.775 Cary
444.875 Louisburg
Monday nights at 7:30pm
all PL tones=100.0 Hz

444.325 Holly Springs
444.150 Clayton
444.550 Benson
443.800 Snow Camp
441.725 Raleigh "hub"
Full time linked repeaters

KD4RAA/K4JDR Repeater Group

RARS MEMBERSHIP DUES

Membership renewals and new membership dues can be paid at RARS meetings, on-line at the RARS website, or mailed to the RARS treasurer. Mail To:

Greg Seamster RARS Treasurer
1405 Leanne Court
Raleigh, NC 27606

RARS now accepts credit card payments online for new members and membership renewals. See the RARS website (www.rars.org) for more information. You can join or renew for 1, 2, or 3 years.

GENERAL MEETING
May 4, 2004

President Andy Peterson, NI4S, called the meeting to order at 7:39 p.m.

Visitors Maxine Gilvey and Larry Jansch, KD5ZTX, were recognized and welcomed.

RARS Treasurer Greg Seamster, KE4PAX, reported that there are currently 273 members. The 2004-05 budget will be presented and voted on at the June meeting.

Field Day Chair Neal Fischer, N4HAF, reported that Field Day is scheduled for Saturday and Sunday, June 26-27, with set up beginning on Friday, June 25 at 2:00 p.m. at the Carroll farm in Apex, NC. Neal advised that more information can be found on the RARS website and that anyone interested in participating in this fun operating event should contact the appropriate band captain.

Vice President Dick Bitner, W8HYD, presented plaques to Andy Peterson, NI4S, for his service as RARS Vice President in 2003 and to Jim Walter, KG4FIJ, for his service as RARS Secretary, 2002-03.

Mark N4MQU gave the presentation on Radio Astronomy
Photo by Jim KG4FIJ

Gary Pearce, KN4AQ, gave a brief update on BPL, showing what BPL sounds like on notched bands in the trial area near Raleigh, NC. He also shared Progress Energy's statements to the FCC regarding harmful interference. Gary encouraged members to reply to these comments by writing the FCC and Progress Energy.

Chuck Littlewood, K4HF, held a drawing for the RARSfest Volunteer Compensation Prize. Max Bloodworth, KO4TV, won the $100.00 prize check.

Vice President Dick Bitner, W8HYD, announced that he will start a Saturday Technician class in early June.

Dick, W8HYD, introduced speaker Mark Gibson, N4MQU, who presented a fascinating program on radio astronomy, utilizing resources from the National Science Foundation.

Gary Pierce, KN4AQ, announced that three examinees passed their Technician Class exams and that Denyse Walter, KG4CXR, earned General Class privileges. Congratulations were extended.

Door prizes were won by Kerrell Watts, W4KGL; Charles Brown, W4VFJ; Denyse Walter, KG4CXR; Mary Jo Littlewood, K4MJL; Jim Walter, KG4FIJ; John Kerfoot, KG4ZVT; and Alan Pitegoff, AB4OZ.

Photo by John KG4SWI

Denyse KG4CXR with the General License CSCE & Jim KG4FIJ holding a plaque for 2 years serving as secretary

The meeting was adjourned at 8:52 p.m.

Respectfully submitted, Virginia Enzor, KG4PFA, Secretary

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RARS 145.13 REPEATER
By Gary KN4AQ

The RARS W4RNC 145.13 (82.5 tone) repeater is finally back home on top of the DH Hill Library building on the NC State Campus. The machine returned to the air on January 11th, 2004, when a work party carried it to the top of the library, installed it in the rack and plugged it in. The repeater attracted immediate activity, and has been moderately busy ever since.

The repeater system consists of:

- Kenwood TRK-750 repeater.
- Sinclair 6-cavity duplexer (30 watts out to the antenna).
- S-Com 7K controller with delay and speech boards.
- CSI TP-163 Tone Panel.
- Tri-band antenna (50-144-440). We share the antenna with the StARS 442.675 repeater. There is no 6-meter radio connected at this time. The antenna is at the base of the WKNC tower, about 130 feet above the street.

The repeater is meeting expectations as a local machine designed to cover Raleigh and immediate suburbs. With an antenna about 130 feet above street level, it is not a barn-burner, but mobiles are able to hit the repeater pretty well for a radius of about 20 miles, and handhelds for about 10 miles, with the usual variations due to our rolling terrain. Coverage to the west suffers from several ridges, and there are some dead spots beginning in the RTP. There is also an intermittent noise problem that makes a crackling sound on all but the strongest signals when it's present. We don't know the source of that noise yet.

Tone required: the repeater is full-time tone-access. The primary tone is 82.5 Hz, and that's the tone everyone should run for normal operation. The repeater has been published for years as running 88.5, so it also responds to that tone, but use of 88.5 is time-limited to about a minute to encourage users to program 82.5. If a user keeps transmitting with 88.5, the repeater will just stop responding to that tone. It will keep working with 82.5, and will respond to 88.5 again after about a minute. The repeater ID announces the 82.5 tone every 10 minutes during use. The transmitter sends 82.5 tone when the user is sending either 82.5 or 88.5. The tone is transmitted only while the receiver is active, and not during hang-time, making the repeater "crossband repeat friendly."

Tone Plan in place: the RARS "Secondary Tone Plan" is also implemented on 145.13, using 203.5 Hz tone. The goal here is to allow users to monitor the repeater for calls from specific stations without having to listen to rag-chew conversations. Typical use will be for families where one spouse wants to listen for the other, but not listen to routine traffic. Or a work party might monitor during set-up at the Hamfest, so an HT can be turned up loud for calls, but not blare activity continuously. Maybe we'll leave a handheld turned on at the Board meetings. To use this plan, program one memory for 82.5 tone, and a second memory for 203.5 encode *and decode*. Let anyone who needs to reach you know that you will be monitoring using the secondary tone, and set your radio to the memory programmed for 203.5 encode/decode. You won't hear any of the stations using 82.5. When your calling party wants to reach you, they should switch to 203.5 Hz tone and make the call. The repeater will also switch, and send 203.5 tone. Then you both switch back to 82.5 and talk, leaving the secondary tone clear for others who may be using the secondary tone function. If you have been monitoring with 203.5 encode/decode and decide you want to call someone, be sure you switch to your 82.5 memory and listen for a bit before making the call. The repeater may have been in use for a while, but you haven't been hearing the activity

(Continued on page 6)

Continued from page 5—145.13 Repeater)

Neighbors: the DH Hill Library is right in the middle of the NC State University campus, with obviously good handheld coverage around the school. Student and alumni members of the NCSU StARS W4ATC club helped acquire the site and install the repeater, and RARS welcomes and encourages their use of the machine. They might make especially good use of the secondary tone feature. 145.13 is an open repeater for use by all Amateur Radio operators (except Novices, who have no two-meter privileges).

More neighbors: when the band is open, you might hear activity from one of our co-channel neighbors. 145.13 is in use from a mountaintop near Mt. Airy (moved recently from Galax, Virginia), and from Ahoskie NC (about 100 miles northeast of Raleigh). The Mt. Airy repeater uses 103.5 tone. The Ahoskie machine is carrier access. The *Repeater Journal* also shows a machine in Sumter SC, but no activity in Virginia. Since the repeater is tone access, users of those repeaters will not key it up. But if those users have a strong signal into our machine, they can still cause unintentional interference to local users. This should be a very rare occurrence, but everyone should remember to use low power if possible during band openings.

History: the 145.13 repeater first went on the air using the StARS W4ATC callsign on January 4th 1994 (yes, way back then!), from the steeple of the Forest Hills Baptist Church (where the club still meets). Coverage was poor. Well, the steeple was clad in copper, so no big surprise. We moved to the roof of the DH Hill Library a few months later, using a converted Harris mobile telephone radio as a repeater.

The repeater was on the air for a few years, but performance degraded with an antenna problem. It wasn't getting a lot of use. Then Danny KD4RAA offered the StARS the use of his 146.775 repeater, with wider coverage from 300 feet up near the fairgrounds. They'd use the roof of DH Hill for a remote receiver, and 145.13 had to move. But before we could find a permanent site, we lost the Bayleaf tower that was the home of our 146.64 machine. Work on that took priority. That tower came down in April, 1998, and we moved 64 a temporary site at Danny's shop. It was not a good time for RARS repeaters.

64 found a home at the Highway Patrol tower, and put 13 on from Danny's shop for a while, but a local interference problem made us take it off the air. Fred Decker N4IXL was eyeing a water tower site in the RTP, but it was going to be a lot of work to get equipment and antennas up there, and the manpower just wasn't there. A little later, interest waned in the NCSU StARS system, Danny shifted the repeater to IRLP use, and the DH Hill roof became available again.

The Kenwoods: meanwhile, I had been casting about for replacement repeaters for all the RARS machines. The Harris "Alpha" mobiles that we had been using for 145.13 and 444.525 worked surprisingly well, but they were getting old and would be hard to service if they had major problems. Many ham repeaters are built from converted commercial mobiles, with GE MSTR II and Motorola Micors being the most popular. But nobody in RARS seemed both interested and qualified to do that work. 64 was operating on a borrowed Yaseu Vertex (still is), and we needed something reliable. Danny Hampton K4ITL suggested the Kenwood TKR series. They were new, relatively affordable, and good quality. Previous "low price" repeaters were of dubious quality, so these were a pleasant surprise. In 2001, RARS bought one UHF and two VHF models

(Continued on page 8.

LOOKing Back 30 Years

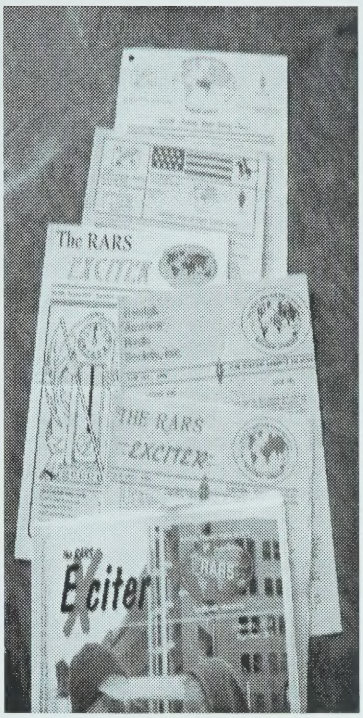
Taken from the June 1974 Exciter

An all solid state emergency powered unit is in the works.

Attendance of the club Hamfest was 600.

Plans began for the '74 Field Day to be held at the Raleigh State Fairgrounds.

Dave W4YDY went to Oklahoma City to the Aeronautical center ARC for school to learn something about ITT synthesized AM transceivers. Jim Wilson, WB4HAL was in a class for "Bright Display Equipment" a system that converts radar to a TV system for use in the tower. RDU airport put this equipment in operation recently. There's just no telling what sophisticated system we'll have to learn next! Maybe even FM or SSB!



LOOKing Back 10 Years

Taken from the June 1994 Exciter

The American Diabetes Association held its second year with RARS ham radio support. Instead of covering a short ride through the RTP, it was out on the Outer Banks, covering 75 miles between Avon, on Hatteras Island, and Ocracoke Village. Hamfest had 675 tables with only 5 not sold. Membership was 403. Suggestions were made to form more SIG groups, or get involved in the SIG's already in place.

RARS NEW MEMBERS

May 2004

We would like to welcome our new members to RARS. Thank you for considering us for your amateur radio club.

Joe W4TTO

NET REPORTS FOR FEBRUARY 2004

8:00PM DAILY: RARS Evening Net

Participants 482
Traffic 36/30
Time 830 minutes
Sessions 30

8:30PM SAT: Tech & Traders Net
9:00PM MON: SWL/SIG

Participants 38
Traffic 1/1
Time 298 Minutes
Sessions 6

146.88 145.39, 147.105, & 147.135 Repeaters are supported by PCRN if you would like to donate please make checks to:

PCRN
PO Box 12734
Raleigh, NC 27605

More info on PCRN: www.pcrn.net

(Continued from page 6– 145.13 Repeater)

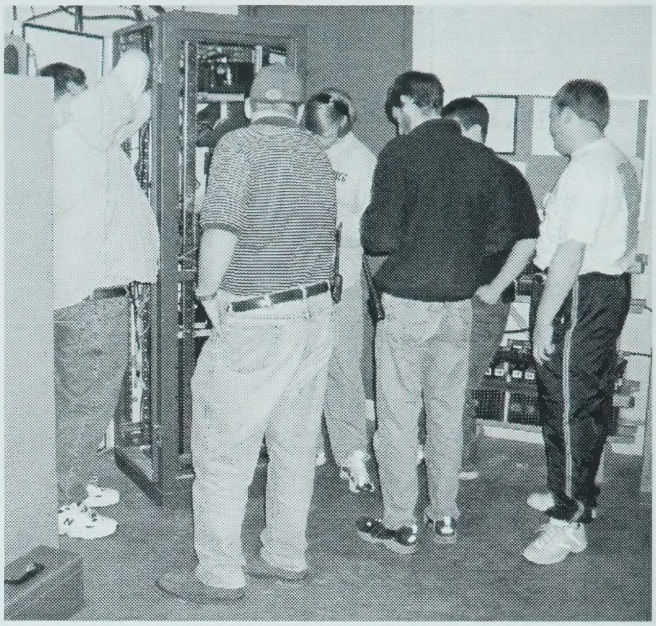
I had hoped that with "ready to go" commercial repeaters, we would have everything back on the air quickly. But I pushed the Board and repeater committee into some decisions that slowed things down. We had chosen S-Com controllers, which were very flexible, but also very complicated to program. Bill Lyon N4CAR and Fred N4IXL learned how to program them, and when 64 moved to the HP tower, a new S-Com was running it. The tone panel/PL plan, my brainchild, was more complicated than everyone imagined.

But progress stalled after that. Bill's interest faded, and Fred moved to Hollywood to make movies. Jeff AC4ZO and I learned enough about the S-Com's to keep things going, just barely, with 64, 224.64 and 444.525 on the air. Then a lightning stike took the Bayleaf machines (224.64 and 444.525) off the air.

When Fred moved back to the area, he and Tom Brown N4TAB got the 444.525 Kenwood on the air from our Bayleaf site, where Mike Murphy WA4BPJ rebuilt the grounding and lightning protection system. The new Kenwood appeared with the tone panel and S-Com in final configuration in 2002, but 145.13 languished a while longer. Fred had it almost ready to go for a long time, but I wasn't able to make time for the final checkout and installation.

Last fall, I finally made the time. I set the repeater up at my house for what turned out to the several months, while I learned the S-Com in depth, and figured out the final mysteries of the tone panel. In January, we put it back up on the library.

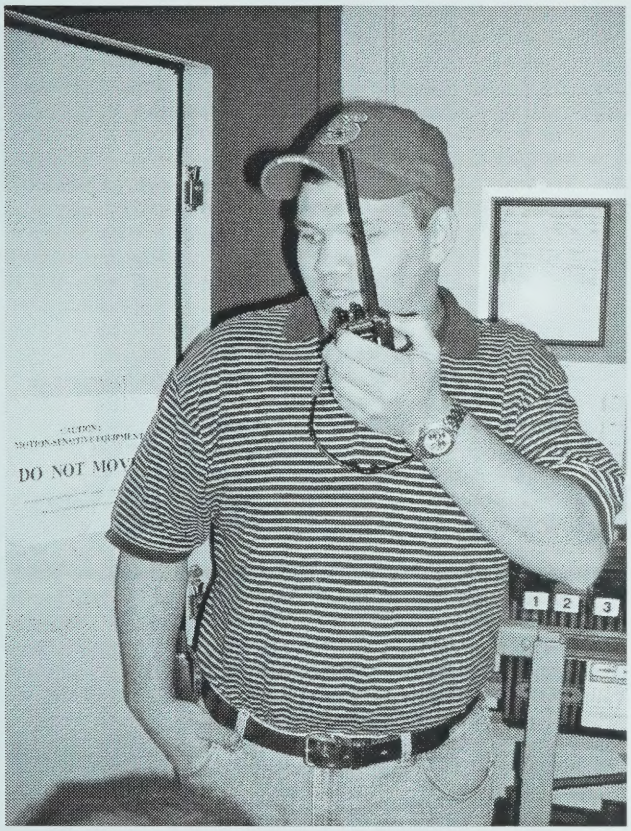
Next: we still have the Kenwood for 146.64. It's been gathering dust for a while now, but we have most of the pieces ready to replace the loaner Vertex. When it's in, 64 will also allow the "tone plan," which should be welcome for our widest coverage, busiest repeater. So far, we plan to leave the repeater "carrier access" for normal use unless interference makes us use the tone full time. I'll make no promises on how long it will take to make the switch.



How many hams does it take to install a repeater? Usually not this many, but we're glad to have help from (left to right, and mostly from behind...) Danny KD4RAA, Brandon McLamb KG4EDW, Aaron Joyner KG4FUW, Joel Ebel KG4EYF, Brian Andrews KD4EWH and Richie Woodberry KG4EWO. (Photo by Gary KN4AQ)

And we're still looking for a 220 repeater to replace 224.64. That's the lowest priority, and the hardest to accomplish. There are a few "off-the-shelf" 220 repeaters available, but they are not the quality of the Kenwoods. There are some high quality repeaters becoming available for that band (since we lost the bottom 2 MHz to commercial interests), but they are all "ultra narrow band," and are not available in a 5 kHz deviation standard narrow-band configuration. VHF commercial radios can be converted, but it's a lot of work, and we still have no one willing and able to do it. We're still looking.

So it's been a long, slow process, but we've made progress. We have 64, 13 and 444.525 on the air, and only 220 (and 64's replacement) yet to go. I think it's time to bring some more interested club members into the repeater circle, now that I can show them what's what. We'll talk about it at a club meeting soon.



Brandon McLamb KG4EDW makes the first contact through the new repeater.

Photo by Gary KN4AQ)

Board Meeting March 15, 2004

The RARS board meeting was held at the Forest Hills Baptist Church on Tuesday, March 16, 2004. Members present were K4HF, K4HM, W8HYD, K1RCB, KG4RMT, KN4AQ, K4MJL, KG4CXR, KG4FIJ, KG4OQA, KG4PFA, W4BRB, and KA2FWC.

The meeting was called to order by Vice President Dick Bitner, W8HYD, at 7:33 p.m. in absence of President Andy Peterson, NI4S.

The minutes from the February board meeting were presented and approved.

Officers' Reports
Treasurer's Report (KE4PAX): In absence of KE4PAX, W8HYD reported that there are currently 266 members.

Vice President's Report (W8HYD):
Upcoming Programs: April: RARS Birthday Party & Presentation by the Triangle Reading Service
May: Radio Astronomy

Committee Reports
FM committee (KA2FWC): No report
Exciter (KG4CXR): No report
Net Manager (KG4OQA): Back-up net controls are needed. Anyone interested should contact KG4OQA.
Web Master (W4NOT): No report
Membership: (KG4CXR): We need to warmly welcome visitors and new members. Welcome letters are going out to new members. There is not a demand for membership cards.

Hamfest (K4HM): The hamfest is coming together. There will be a 50/50 raffle with 50 % of the proceeds going to a winner and 50% going to public service. Radio prizes are on back order. Sales of booths are up. Riley Hollingsworth will attend. We need to advertise well, and volunteers are still needed. Social chair K4MJL asked all who are attending the RARS board meeting to bring food for Saturday night vendor social. W4BRB discussed the need for a procedure to hand first aid at the hamfest.

Public Information (KN4AQ) Gary updated the board about BPL, describing his recent visit to the Progress Energy test site and his exchanges with Progress Energy and Amperion representatives and FCC Chairman Michael Powell.
Education (K4RLC): No report
Public Service (K1RCB): The Odyssey of the Mind service project headed by Dick Orander, KD4ISC, went well. The MS Walk and Pooch Parade is being coordinated by Marian Breyer, K1MRB, and Denyse Walter, KG4CXR. Work on the MS 150 is underway.
ARRL Liaison (K4HF): The upcoming hamfest will be a state convention. Dan Henderson will check QSL cards. Riley Hollingsworth will speak.

Nominating Committee (K4HF): No report
W4DW/W4RNC Trustee (AC4ZO): No report
At Large Directors (KG4FIJ, KG4RMT, WA9SZL): No report
Special or Ad Hoc Committees: K4HF reported that the Awards Committee is gathering information for the upcoming RARS birthday party.

Unfinished Business
•Central Carolina Helping Hams may refer event coordinators to RARS to check on our availability to coordinate/serve.
•The remote HF project has been dropped.
New Business
•W8HYD is looking into candidates for life memberships.

On motion by K1RCB, the meeting was adjourned at 9:05 p.m.

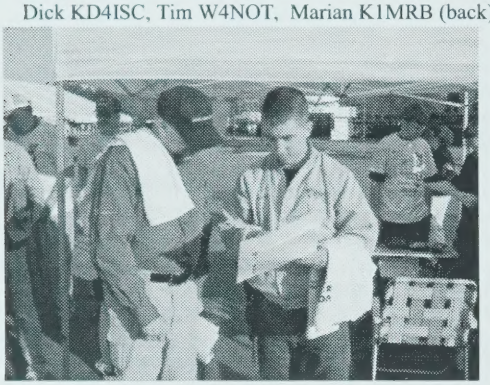
Respectfully submitted,
Virginia Enzor, KG4PFA, Secretary

MS POOCH WALK—MS WALK EVENT APRIL 17, 2004

Andy NI4S, Jim KI4BZB, Chuck K4HF, Mary Jo K4MJL
Dick KD4ISC, Tim W4NOT, Marian K1MRB (back)

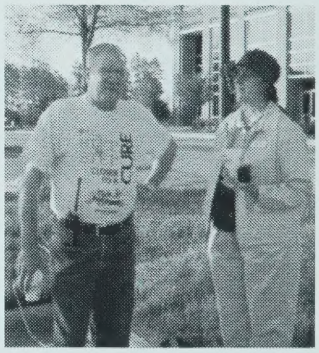
Bob K1RCB setting up antenna
with Mark WD4KSE

Control Operator:
Dick KD4ISC



John K4JVP and Tim W4NOT checking map

Marian K1MRB and Bob K1RCB Coordinators



Neal N4HAF and Annie KG4SWI

Photos by Denyse KG4CXR

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The Central Carolina Skywarn Net Meets

Remember to give damage reports AFTER the storms as well as DURING the storms.

SKYWARN DINNER:

The next Skywarn dinner will be May 23, 2004 at the El Rodeo Restaurant, 6:30. If anyone would like to be a Skywarn net control operator, please contact Denyse KG4CXR@nc.rr.com or Bob WX4MMM@arrl.net for details. Every Tuesday at 9:15pm is the Skywarn net.

April 25, 2004 Skywarn dinner was held at the El Rodeo Restaurant. From left : Tanner KB4TYE, Jim KG4FIJ, Isarel N4ZVU, Skip N6AUJ, Bryon K4NGJ, Emily K4WXG Back right: David KF4VXJ, Hank K4HM, Rick A9AJ, John K4JVP, Bob WX4MMM Janell KI4BZG

DID YOU KNOW.....

There is a dinner once a month, known as the RARS Dinner, where hams and non-hams get together to eat, socialize and become better acquainted.

Are you looking for a ham-related activity that your spouse, date, or family can participate in, even if they don't want to be an amateur radio operator? This is it. Do you want to meet interesting, likeable people in a nice environment? This is for you.

Come join us on the 4th Tuesday of each month. We are currently meeting in the private dining room at the Golden Corral, 6129 Glenwood Avenue. People start arriving around 6:30 P.M., and things usually wind down by 8 P.M. or so. You can come whenever it's convenient for you. This gathering is open to anyone, RARS and non-RARS members, adults and children alike. Hope to see you there.

HAMFEST CALENDAR

June 5	Winston-Salem, NC
June 26-27	**FIELD DAY**
July 3	Salisbury, NC
July 17	**Cary, NC**
July 31	Roanoke, VA
July 31	Waynesville, NC
September 4-5	Shelby, NC
October 10*	Maysville, NC
November 13	Gastonia, NC
November 21	**Benson, NC- JARSFEST**

Courtesy of the SERA Repeater Journal
* Date is not confirmed

The RARS June 2004
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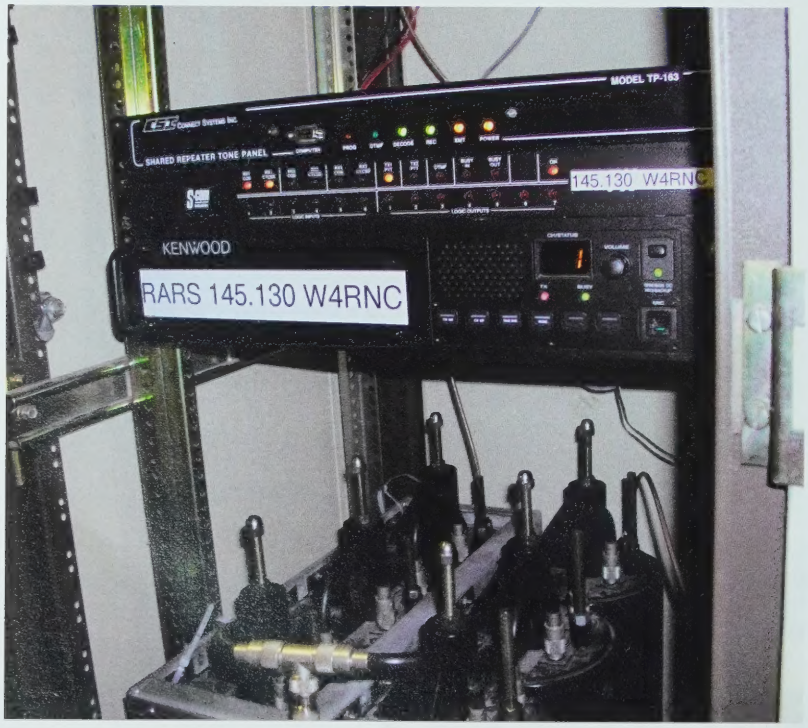
145.13 REPEATER



You can see just the top of the duplexer, and above it are the Kenwood TKR-750 repeater, the S-Com controller, and the CSI Tone Panel. Most of the lights are lit up, indicating that the repeater is in use.